

What is claimed is:

- 1 1. A method for reducing power consumption in a satellite
2 downlink transmitter, the method comprising:
3 defining a frame structure for use on a downlink, and
4 further defining a traffic body and an overhead
5 body in said frame structure;
6 determining a traffic transmit time and an overhead
7 transmit time;
8 storing synchronization information in said overhead
9 body;
10 activating a transmitter for said overhead transmit
11 time and transmitting said overhead body; and
12 selectively deactivating said transmitter for said
13 traffic transmit time.
- 1 2. The method of claim 1, wherein said step of activating
2 a transmitter includes the step of enabling a power
3 amplifier.
- 1 3. The method of claim 1, wherein said step of activating
2 a transmitter includes the step of applying a downlink
3 frame signal representing said overhead body to a
4 travelling wave tube amplifier.
- 1 4. The method of claim 1, wherein said step of
2 deactivating said transmitter includes the step of

3 disabling a power amplifier.

1 5. The method of claim 1, wherein said step of
2 deactivating said transmitter includes the step of
3 eliminating an input signal to a travelling wave tube
4 amplifier.

1 6. The method of claim 1, wherein said step of defining
2 said traffic body includes defining said traffic body
3 as a multiple of a 53 byte Asynchronous Transfer Mode
4 (ATM) cell.

1 7. A method for reducing power consumption in a satellite
2 downlink transmitter, the method comprising:
3 defining a frame structure for use on a downlink, and
4 further defining a traffic body and an overhead
5 body in said frame structure;
6 determining a traffic transmit time, an overhead
7 transmit time;
8 storing synchronization information in said overhead
9 body;
10 queueing traffic information for transmission to
11 produce queued traffic;
12 establishing a latency threshold which determines the
13 maximum time for which any portion of traffic
14 information remains queued without transmission;
15 determining whether said latency threshold has been

16 exceeded; and
17 transmitting information in a downlink according to the
18 following substeps:
19 activating a transmitter for said overhead
20 transmit time and transmitting said
21 overhead body including said
22 synchronization information;
23 transmitting, if said latency time has been
24 exceeded, said traffic body for said
25 traffic time; and
26 deactivating, if said latency time has not
27 been exceeded, said transmitter for said
28 traffic transmit time.

1 8. The method of claim 7, further comprising the step of
2 storing in at least one traffic body said queued
3 traffic.

1 9. The method of claim 7, further comprising the step of
2 sequentially storing in multiple overhead bodies
3 synchronization information and sequentially storing in
4 multiple associated traffic bodies said queued traffic,
5 and wherein said transmitting step comprises activating
6 said transmitter to transmit each of said multiple
7 overhead bodies and each of said multiple associated
8 traffic bodies in which queued information has been
9 stored.

- 1 10. The method of claim 7, wherein said step of
2 establishing a latency threshold comprises establishing
3 said latency threshold as a multiple of a frame
4 transmit time.
- 1 11. The method of claim 7, further comprising the steps of:
2 determining when enough queued information exists
3 to fill said traffic body;
4 storing said queued information in said traffic
5 body;
6 activating said transmitter to transmit said
7 overhead body and said traffic body.
- 1 12. The method of claim 7, wherein said queueing step
2 comprises queueing traffic information in units of 53
3 byte Asynchronous Transfer Mode (ATM) cells.
- 1 13. The method of claim 7, further comprising the step of
2 storing null information in any traffic body that is
3 only partially filled with queued traffic information.
- 1 14. The method of claim 13, wherein said step of storing
2 null information comprises storing null ATM cells.
- 1 15. A method for reducing power consumption in a satellite
2 downlink transmitter which transmits frames in a

3 downlink beam, said frames comprising an overhead body
4 of predetermined length in said frame and a traffic
5 body of predetermined length in said frame, the method
6 comprising:
7 iterating the following steps:
8 building an overhead body;
9 building an associated traffic body;
10 transmitting said overhead body with a
11 transmitter; and
12 selectively deactivating said transmitter for the
13 duration of a traffic transmit time for said
14 traffic body.

1 16. The method of claim 15, wherein said step of
2 selectively deactivating comprises deactivating in
3 response to content in said traffic body.

1 17. The method of claim 16, wherein said step of
2 selectively deactivating comprises deactivating said
3 transmitter when said content is all null information.

1 18. The method of claim 15, further comprising the steps
2 of:
3 building an additional overhead body;
4 building an additional associated traffic body;
5 activating said transmitter;
6 transmitting said additional overhead body; and

7 selectively deactivating said transmitter for the
 8 duration of a traffic transmit time for said
 9 traffic body.

1 19. The method of claim 15, further comprising determining
 2 said traffic transmit time as the amount of time
 3 required by said transmitter to send said traffic body.

1 20. The method of claim 15, further comprising storing null
 2 information in said traffic body.